

WHAT IS CLAIMED IS:

1. A method for treating a patient comprising the steps of:

placing a material with a probe which extends less than 1000 microns from a surface of a deployment mechanism;

inserting the probe into a vessel of patient;

penetrating the interior wall of the vessel from the interior of the vessel with the probe by activating the deployment mechanism so the material can contact the vessel.

2. A method as described in Claim 1 wherein the inserting step includes the step of inserting the probe into a blood vessel of a patient.

3. A method as described in Claim 2 wherein the penetrating step includes the step of expanding a balloon of the deployment mechanism on which the probe is disposed until the probe pierces the interior of the vessel wall.

4. A method as described in Claim 3 wherein the placing step includes the step of coating the material on the surface of the probe.

5. A method as described in Claim 4 wherein the coating step includes the step of putting DNA on the surface of the probe, where the surface is made of gold or a material which is both conductive and to which DNA adheres.

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6. A method as described in Claim 4 including after the penetrating step, there is the step of removing the probe from the vessel.

7. A method as described in Claim 4 wherein the coating step includes the step of coating the material with hydrogel or other biocompatible material which provides a protective coating to drugs or DNA.

8. A method as described in Claim 3 wherein the placing step includes the step of filling a reservoir on the inside of the probe with the material.

9. A method as described in Claim 1 wherein after the inserting step there is the step of opening a housing in which the probe is disposed, said housing protecting the probe and material from body fluid in the patient.

10. An apparatus for treating a patient comprising:

a deployment mechanism having a surface;

at least one probe disposed on the deployment mechanism surface, said probe extending between 25 microns to 1000 microns from the surface of the deployment mechanism; and

material coated on the probe.

11. An apparatus as described in Claim 10 including at least a second probe disposed on the surface of the deployment mechanism having material coating on the second probe.

12. An apparatus as described in Claim 11 wherein the deployment mechanism includes a balloon having a surface with the first and second probes disposed on the surface of the balloon.

13. An apparatus as described in Claim 12 wherein each probe is coated with gold or a material which DNA would adhere, and the material has DNA.

14. An apparatus as described in Claim 13 wherein the material is a gene encoding for nitric oxide synthase or vascular endothelial growth factor.

15. An apparatus as described in Claim 12 wherein the material is coated with a hydrogel or other biocompatible material which provides a protecting coating to drugs or DNA.

16. An apparatus as described in Claim 15 wherein the material is prednisone or low molecular weight heparin or hirudin.

17. An apparatus as described in Claim 12 wherein each probe has a pointed tip.

18. An apparatus as described in Claim 17 wherein each probe is cone shaped.

19. An apparatus as described in Claim 12 wherein each probe extends radially from the surface of the balloon.

20. An apparatus as described in Claim 19 wherein the deployment mechanism includes a removable housing in which the probes are disposed when the housing is in a closed state, but is separated from the probes when the balloon is in an inflated state.

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21. A method for fabricating probes comprising the steps
of:

placing a pattern on a silicon wafer;

etching the wafer with the pattern on the wafer to form
a metal lattice with probes; and

rolling the metal lattice into a cylindrical shape.

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